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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/725,397

12/03/2003

Masao Kato

03500.017754.

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07/19/2007

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EXAMINER

KAU, STEVEN Y

ART UNIT

PAPER NUMBER

2625

MAIL DATE

DELIVERY MODE

07/19/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/725,397

Applicant(s)

KATO ET AL.

Examiner

Steven Kau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/2/2004</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on September 2, 2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Should applicant desire to obtain the benefit of foreign priority under 35 U.S.C. 119(a)-(d) prior to declaration of an interference, a translation of the foreign application should be submitted under 37 CFR 1.55 in reply to this action.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 3, 6, 9, 12, 15, 18, 21, & 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With regard to method claim 9, recited "A method according to claim 7, wherein said first processing step is an error diffusion process for executing quantization on the basis of information of the other density components among said plurality of density components", in which the underlined words are not defined in the disclosure. In light of the disclosed specification, "the basis of information of the other density components" is

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interpreted as: the basis of information can be values of brightness, multitone, grayscale, pixel and gradation level, etc. and other density components can be pixel, gradation level, ink density, color density, etc.

Claims 3, 6, 12, 15, 18, 21 and 24 are rejected under 35 U.S.C. 112, second paragraph, for the same reasons discussed in the rejection of claim 9.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 19-24 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 19 and 22 are drawn to "an image processing program" and "a print control program", respectively. Both claims can be characterized as either "functional descriptive material" or "nonfunctional descriptive material". Since the computer program comprising steps of for a first processing step of executing the error diffusion process, a second processing step of executing the error diffusion process, and an error diffusion processing control step, it is being considered as "nonfunctional descriptive material" because "a computer program" per se in the claims can merely be an abstract idea.

Also, considering the claim as "functional descriptive material" imparts with functionality, but not being employed as a computer component (or other physical structures), is considered not statutory. "In contrast, a claimed computer-readable medium encoded with a computer program... is thus statutory." (See "*Interim*

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Guideline for Examination of Patent Application for Patent Subject Matter Eligibility", ANNEX IV, Page 53, First Paragraph;).

Therefore, both types of "descriptive material" are nonstatutory when claimed as descriptive material per se (See "Interim Guideline for Examination of Patent Application for Patent Subject Matter Eligibility", ANNEX IV, Page 50, Second Paragraph;). As well as the claimed program is not necessarily a computer program, and is not encoded or embodied on a computer readable medium, there is no structural and functional interrelationships, thus, the claim is considered non-statutory.

Since claims 20 and 21 are dependent claims to claim 19, and claims 23 and 24 are dependent claims to claim 22, these claims are rejected under 35 U.S.C. 101 for the same reasons discussed in the rejection of claims 19 and 22.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 3-4, 6-7, 9-10, 12-13, 15-16, 18-19, and 21-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Mizuyama et al (Mizuyama) (US 6,813,043).

With regard to claim 7, Mizuyama discloses an image processing device, in that he teaches an image processing method of executing an error diffusion process to

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multivalue image data consisting of a plurality of density components (Abstract, col 7, lines 19-37), comprising: a first processing step of executing the error diffusion process by changing at least one of a quantization threshold value and a quantization diffusion coefficient which are used for said error diffusion process on the basis of a value of said multivalue image data of the density components or a value calculated from said multivalue image data value {e.g. varied the threshold value for brightness} (col 12, lines 23-33); a second processing step of executing the error diffusion process by setting the quantization threshold value and the quantization diffusion coefficient which are used for said error diffusion process into fixed values {e.g. the brightness threshold value may be fixed} (col 23, lines 27-51); and an error diffusion processing control step of making control to execute the error diffusion process to at least one color among said plurality of density components by said first processing step {e.g. when the threshold value for dot formation is not reached in all the three CMY channels – threshold value is changed, or adjusted} (Figures 5 & 6, col 8, lines 44-62) and execute the error diffusion process to other density components by said second processing step {e.g. a dot is formed for a channel with a density higher than the threshold value – here, the threshold value must be fixed so that a density value can be compared with the threshold value} (Figure 13, col 11, lines 47-67 & col 12, lines 1-2).

With regard to claim 9, in accordance with claim 7, Mizuyama anticipated that said first processing step is an error diffusion process for executing quantization on the basis of information of the other density components among said plurality of density components {e.g. grayscale, colors density, etc.} (col 9, lines 42-59).

With regard to claim 1, the structure elements of method claim 7 perform all steps of apparatus claim 1. Thus claim 1 is rejected under 102(b) for the same reason discussed in the rejection of claim 7.

With regard to claim 4, the structure elements of method claim 7 perform all steps of apparatus claim 4. Thus claim 4 is rejected under 102(b) for the same reason discussed in the rejection of claim 7.

With regard to claim 10, the structure elements of method claim 7 perform all steps of control method claim 10. Thus claim 10 is rejected under 102(b) for the same reason discussed in the rejection of claim 7.

With regard to claim 13, Mizuyama anticipates that a program runs a computer (col 37, lines 15-35). In addition, the structure elements of method claim 7 perform all steps of computer-readable storing medium claim 13. Thus claim 13 is rejected under 102(b) for the same reason discussed in the rejection of claim 7.

With regard to claim 16, Mizuyama anticipates that a program runs a computer (col 37, lines 15-35). In addition, the structure elements of method claim 7 perform all steps of computer-readable storing medium claim 16. Thus claim 16 is rejected under 102(b) for the same reason discussed in the rejection of claim 7.

With regard to claim 19, Mizuyama anticipates that a program runs a computer (col 37, lines 15-35). In addition, the structure elements of method claim 7 perform all steps of computer-readable storing medium claim 19. Thus claim 19 is rejected under 102(b) for the same reason discussed in the rejection of claim 7.

With regard to claim 22, Mizuyama anticipates that a program runs a computer (col 37, lines 15-35). In addition, the structure elements of method claim 7 perform all steps of computer-readable storing medium claim 22. Thus claim 22 is rejected under 102(b) for the same reason discussed in the rejection of claim 7.

With regard to claim 3, the structure elements of method claim 9 perform all steps of apparatus claim 3. Thus claim 3 is rejected under 102(b) for the same reason discussed in the rejection of claim 9.

With regard to claim 6, the structure elements of method claim 9 perform all steps of apparatus claim 6. Thus claim 6 is rejected under 102(b) for the same reason discussed in the rejection of claim 9.

With regard to claim 12, the structure elements of method claim 9 perform all steps of control method claim 12. Thus claim 12 is rejected under 102(b) for the same reason discussed in the rejection of claim 9.

With regard to claim 15, the structure elements of method claim 9 perform all steps of computer-readable medium claim 15. Thus claim 15 is rejected under 102(b) for the same reason discussed in the rejection of claim 9.

With regard to claim 18, the structure elements of method claim 9 perform all steps of computer-readable medium claim 18. Thus claim 18 is rejected under 102(b) for the same reason discussed in the rejection of claim 9.

With regard to claim 21, the structure elements of method claim 9 perform all steps of computer program claim 21. Thus claim 21 is rejected under 102(b) for the same reason discussed in the rejection of claim 9.

With regard to claim 24, the structure elements of method claim 9 perform all steps of computer program claim 24. Thus claim 24 is rejected under 102(b) for the same reason discussed in the rejection of claim 9.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2, 5, 8, 11, 14, 17, 20, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizuyama et al (Mizuyama) (US 6,813,043) in view of Knox (US 5,668,638).

With regard to claim 8 in accordance with claim 7, Mizuyama differs from claim 8, in that he does not teach that the error diffusion process is executed to the density components of a similar color among said plurality of density components by executing the error diffusion process to the density component whose highest density which can be expressed is low by said first processing step and executing the error diffusion process to the density component whose highest density which can be expressed is high by said second processing step.

Knox discloses "Error Diffusion Method With Symmetric Enhancement", in that he teaches that the error diffusion process is executed to the density components of a

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similar color among said plurality of density components by executing the error diffusion process to the density component whose highest density which can be expressed is low by said first processing step and executing the error diffusion process to the density component whose highest density which can be expressed is high by said second processing step {e.g. Knox teaches threshold modulation circuit, varying the threshold signals proportionally to the input image, and recursively varying the threshold signals in response to previous threshold signals. Therefore, in a mathematical expression, highest density value can be shown as low. } (col 4, lines 6-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Mizuyama to include that the error diffusion process is executed to the density components of a similar color among said plurality of density components by executing the error diffusion process to the density component whose highest density which can be expressed is low by said first processing step and executing the error diffusion process to the density component whose highest density which can be expressed is high by said second processing step taught by Knox to effectively cancel the asymmetric edge enhancement (col 4, lines 33-36).

With regard to claim 2, the structure elements of method claim 8 perform all steps of apparatus claim 2. Thus claim 2 is rejected under 103(a) for the same reason discussed in the rejection of claim 8.

With regard to claim 5, the structure elements of method claim 8 perform all steps of control apparatus claim 5. Thus claim 5 is rejected under 103(a) for the same reason discussed in the rejection of claim 8.

With regard to claim 11, the structure elements of method claim 8 perform all steps of control method claim 11. Thus claim 11 is rejected under 103(a) for the same reason discussed in the rejection of claim 8.

With regard to claim 14, the structure elements of method claim 8 perform all steps of computer-readable medium claim 14. Thus claim 14 is rejected under 103(a) for the same reason discussed in the rejection of claim 8.

With regard to claim 17, the structure elements of method claim 8 perform all steps of computer-readable medium claim 17. Thus claim 17 is rejected under 103(a) for the same reason discussed in the rejection of claim 8.

With regard to claim 20, the structure elements of method claim 8 perform all steps of computer program claim 20. Thus claim 20 is rejected under 103(a) for the same reason discussed in the rejection of claim 8.

With regard to claim 23, the structure elements of method claim 8 perform all steps of computer program claim 23. Thus claim 23 is rejected under 103(a) for the same reason discussed in the rejection of claim 8.

Correspondence Information

1. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement is traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one

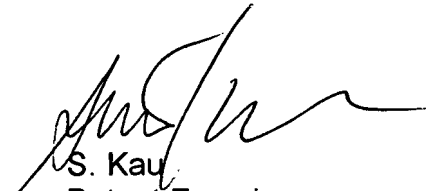
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or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Kau whose telephone number is (571) 270-1120. The examiner can normally be reached on Monday to Friday, from 8:30 AM – 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Twyler Lamb can be reached on (571) 272-7406. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



S. Kau
Patent Examiner
Division: 2625
June 1, 2007



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